

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number
WO 2005/062407 A2

(51) International Patent Classification⁷:

H01M 8/02

(74) Agents: AOKI, Atsushi et al.; A. AOKI, ISHIDA & ASSOCIATES, Toranomon 37 Mori Bldg., 5-1, Toranomon 3-chome, Minato-ku, Tokyo, 1058423 (JP).

(21) International Application Number:

PCT/JP2004/019703

(22) International Filing Date:

22 December 2004 (22.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2003-427852 24 December 2003 (24.12.2003) JP
60/534,988 9 January 2004 (09.01.2004) US

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): **SHOWA DENKO K.K.** [JP/JP]; 13-9, Shibadaimon 1-chome, Minato-ku, Tokyo, 1058518 (JP).

(72) Inventors; and

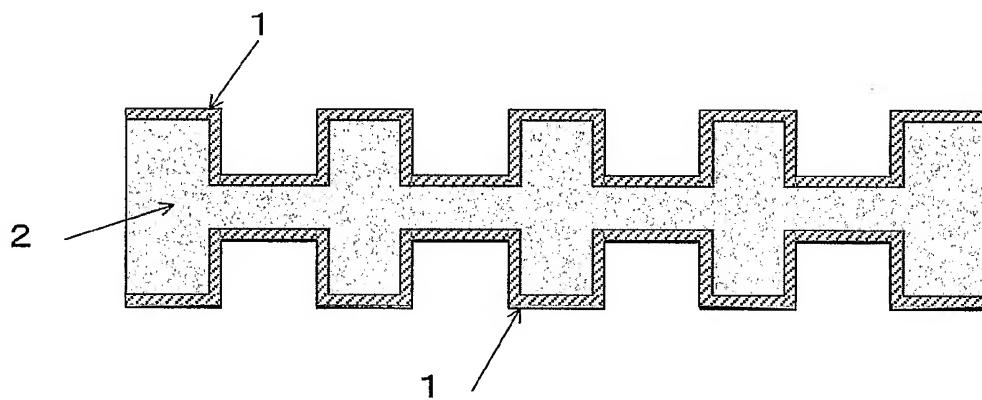
(75) Inventors/Applicants (for US only): **IINO, Tadashi** [JP/JP]; c/o CORPORATE R & D CENTER, SHOWA DENKO K.K., 5-1, Okawacho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 2100858 (JP). **IZUMI, Zenichiro** [JP/JP]; c/o CORPORATE R & D CENTER, SHOWA DENKO K.K., 5-1, Okawacho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 2100858 (JP).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FUEL CELL SEPARATOR AND PRODUCTION PROCESS THEREOF



(57) **Abstract:** A fuel cell separator having a surface layer on one side or both sides thereof. The surface layer includes at least two layers, wherein the surface layer includes a low-elastic modulus layer (A) having a bending elastic modulus of 1.0×10^1 - 6.0×10^3 MPa, and a bending strain of 1% or more; and a high-elastic modulus layer (B) having a bending elastic modulus exceeding 6.0×10^3 MPa, as at least one layer constituting the surface layer, other than the low-elastic modulus layer (A).

WO 2005/062407 A2